

AMENDMENTS TO THE DRAWINGS

Replacement drawing of Figure 6A is submitted concurrently herewith under a separate cover letter.

REMARKS

In view of the above amendments and the following remarks, reconsideration and further examination are respectfully requested.

The specification and abstract have been reviewed and revised to improve their English grammar. The amendments to the specification and abstract have been incorporated into a substitute specification and abstract. Attached are two versions of the substitute specification and abstract, a marked-up version showing the revisions, as well as a clean version. No new matter has been added.

A proposed drawing amendment is submitted herewith under a separate cover letter. Specifically, figure 6A has been amended to replace reference number 101 with reference number 132 so that figure 6A is consistent with the specification. This drawing amendment is editorial in nature and does not add new matter to the application.

Claims 1, 5-24, 28-42, 44 and 45 have been amended to clarify features of the invention recited therein and to further distinguish the present invention from the references relied upon in the rejections discussed below. Claims 2-4, 25-27 and 43 have been cancelled.

It is also noted that claims 1, 5-24, 28-42, 44 and 45 have been amended to make a number of editorial revisions thereto. These editorial revisions have been made to place the claims in better U.S. form. Further, these editorial revisions have not been made to narrow the scope of protection of the claims, or to address issues related to patentability, and therefore, these amendments should not be construed as limiting the scope of equivalents of the claimed features offered by the Doctrine of Equivalents.

Claims 1, 18, 19, 20, 21, 44 and 45 were rejected under 35 U.S.C. § 102(b) as being anticipated by Chung et al. (U.S. 4,779,266). Further, claims 5-17, 22-24 and 28-43 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chung in view of various combinations of Forestieri (U.S. 2004/0066856), Gill et al. (U.S. 7,277,647), Chow et al. (U.S. 6,574,022), Betts (U.S. 5,373,388), Miyauchi et al. (U.S. 6,823,141), Aoki (U.S. 5,315,426), Khoe et al. (U.S. 4,779,266), Myers (U.S. 2003/0026199), and Izadpanah (U.S. 6,791,734). These rejections are believed clearly inapplicable to amended claims 1, 5-24, 28-42, 44 and 45 for the following reasons.

Each of amended independent claims 1 and 18 recite an ultra wide band optical transmission system for optically transmitting a data signal via an ultra wide band transmission.

Further, claims 1 and 18 recite a pulse train generating means for converting the data signal to a short pulse train and for outputting the short pulse train as an ultra wide band transmission. Further, claims 1 and 18 recite a means for converting the short pulse train to an optically modulated signal, an optical transmission path for transmitting the optically modulated signal, a means for converting the optically modulated signal to an electrical signal, and a means for obtaining the short pulse train from the electrical signal and extracting the data signal from the short pulse train originally output as the ultra wide band transmission. The Chung, Forestieri, Gill, Chow, Betts, Miyauchi, Aoki, Khoe, Myers, and Izadpanah references, or any combination thereof, fail to disclose or suggest the above-mentioned distinguishing features recited in independent claims 1 and 18.

Rather, as acknowledged by the Examiner on page 31 of the Office Action, Chung teaches encoding and decoding common spread spectrum communications, but fails to disclose or suggest a transmission system capable of ultra wide band transmissions using a short pulse train, as recited in amended independent claims 1 and 18. Therefore, Chung does not anticipate the invention as recited in amended independent claim 1 and 18 and claims 5-24 and 28-42 which depend therefrom.

In light of the deficiencies of Chung, the above-mentioned 35 U.S.C. § 103(a) rejection relies on a combination of the Chung and Izadpanah references for teaching the use of an ultra wide band signal and a short pulse train in a transmission system, as now recited in amended independent claims 1 and 18.

However, as mentioned above, Chung teaches a technique targeting a common spread spectrum communication (such as a wireless LAN) that is based on CDMA (see cols. 1 and 2, and fig. 1). Specifically, Chung teaches a communication technique that is only capable of common spread spectrum communication, which is not ultra wide band communication. Further, Izadpanah merely teaches the use of an ultra wide band impulse radio system (see col. 4, lines 51-57).

Thus, in view of the above, it is clear that Chung teaches a system that is capable targeting common spread spectrum communications, but fails to disclose or suggest the use of an ultra wide band signal and a short pulse train in a transmission system, as now required by amended independent claims 1 and 18.

It is also noted that although Izadpanah teaches an ultra wide band radio, Izadpanah fails to disclose or suggest transmitting and receiving a data signal using an ultra wide band transmission and a short pulse train, as now required by amended independent claims 1 and 18.

Further, it is apparent that, since Chung does not disclose or suggest a system capable of ultra wide band communications and Izadpanah merely teaches a ultra wide band impulse radio, the combination of Chung and Izadpanah cannot be said to disclose or suggest the pulse train generating means for outputting the short pulse train as an ultra wide band transmission, the means for converting the short pulse train to an optically modulated signal, the optical transmission path for transmitting the optically modulated signal, the means for converting the optically modulated signal to the electrical signal, and the means for obtaining the short pulse train from the electrical signal and extracting the data signal from the short pulse train originally output as an ultra wide band transmission, as required by amended independent claims 1 and 18.

Therefore, because of the above-mentioned distinctions it is believed clear that claims 1 and 18 would not have been obvious or result from any combination of Chung and Izadpanah.

Regarding dependent claims 5-24 and 28-42, which were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chung in view of various combinations of the Forestieri, Gill, Chow, Betts, Miyauchi, Aoki, Khoe, Myers, and Izadpanah references (secondary references), it is respectfully submitted that these secondary references do not disclose or suggest the above-discussed features of independent claims 1 and 18 which are lacking from the Chung reference. Therefore, no obvious combination of Chung with any of the secondary references would result in, or otherwise render obvious, the inventions recited independent claims 1 and 18 and claims 5-24 and 28-42 that depend therefrom.

Furthermore, there is no disclosure or suggestion in Chung or the secondary references which would have caused a person of ordinary skill in the art to modify Chung and/or the secondary references to obtain the invention of independent claims 1 and 18. Accordingly, it is respectfully submitted that independent claims 1 and 18 and claims 5-24 and 28-42 which depend therefrom are clearly allowable over the prior art of record.

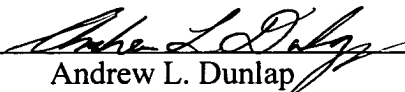
Amended independent claims 44 and 45 recite an ultra wide band transmission apparatus and an ultra wide band receiver apparatus, respectively. Amended claims 44 and 45 recite features that correspond to the above-mentioned distinguishing features of independent claims 1 and 18 (e.g., ultra wide band transmissions, short pulse trains, etc.). Thus, for the same reasons

discussed above, it is respectfully submitted that claims 44 and 45 are allowable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance and an early notification thereof is earnestly requested. The Examiner is invited to contact the undersigned by telephone to resolve any remaining issues.

Respectfully submitted,

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